



1.0 DESCRIPTION

The 11-62 is a stand-alone 4 watt POC SAG paging transmitter with an in-built encoder. It can be controlled via an RS232 serial interface to provide numeric, alphanumeric and tone-only POC SAG encoding enabling a user to call a pager (over 2,000,000 codes), append a priority level (1 of 4), and add a numeric or alphanumeric message.

Messages are limited to 120 characters by the buffer size, and to 240 character pre-defined messages by the programming software. Serial control is achieved using ASCII character commands.

12 discrete inputs are supported with unique pre-programmed messages on high and/or low transition, plus a low voltage detection message on the power input.

The inputs can be configured for several options and can be configured to act as 12 individual inputs or binary code inputs to select pager number, pager message and level. Provision to transmit a message more than once is catered for as well as a variable time between transmissions.

In addition to the SALCOM propriety protocol, the RS232 serial port can be used to initiate paging transmissions using the Paging Entry Protocol (PET) or Telocator Alphanumeric Protocol (TAP) PG1 protocol. For dial-up applications, a HAYES compatible modem is also supported.

- 1.1 Over temperature cutout:** When the unit transmits at full power in a hot environment, a protective cutout may operate. This will reduce the output power to a safe level, and will reset when the unit temperature has fallen to below 70 deg. This cutout is designed to avoid permanent damage to the transmitter.
- 1.2 Transmitter Duty cycle:** The transmitter duty cycle is rated as 50% with a max 'on' time of 5 minutes. Higher duty cycles may be possible, please contact the factory for advice.

2.0 WARRANTY

Our Products are warranted for a period of 12 months from date of purchase against faulty materials and workmanship. Should any fault occur the unit should be returned to the vendor, freight pre-paid. Please include a description of the fault to assist with prompt return. Any unauthorized alterations or repairs will invalidate the warranty.

3.0 DISCLAIMER

All information provided in this document is carefully prepared and offered in good faith as a guide in the installation, use and servicing of our products. Installers must ensure that the final installation operates satisfactorily within the relevant regulatory requirements. We accept no responsibility for incorrect installation and reserve the right to change products, specifications, and installation data at any time, without notice.

4.0 MECHANICAL DESCRIPTION

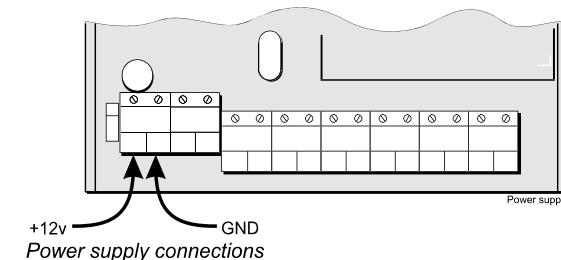
The 1162 is enclosed in a pressed aluminium box. The lid will unclip to reveal 16 screw terminals, and adjustment for the low supply detector. The lid can also be used for mounting the unit on a wall, and the overhang can be cut or modified to allow cable entry as required. It is advisable to mount the unit away from sources of heat, damp or vibration.

5.0 INSTALLATION

The power supply should be connected as illustrated on page 3, at a voltage shown in the specification. The supply input is protected against reversed connection. The aerial connection is via the BNC connector, and should present a nominal load of 50 Ω , with a VSWR of better than 1.8:1. It is recommended to site the aerial a few metres away from the 1162 to avoid RF feedback causing problems with the transmitter operation. An outside aerial is preferable, as it will provide better radio coverage.

External indicators comprise a power indicator GREEN LED, normally ON with very brief flashes to indicate healthy microcontroller operation. After a de-bounce period, the green LED will flash rapidly if the low supply detector is activated.

The RED LED will indicate when the unit is transmitting. A flashing RED LED indicates the unit cannot transmit as either the synthesiser is out of lock or the *channel busy* input is active.



6.0 OPERATION

The 1162 can transmit three types of POCSAG message, with any one of four function levels:

- Alphanumeric transmissions. Message can contain any alphanumeric 'ASCII' character.
- Numeric transmissions. Message contains only Numeric characters and some symbols.
- Tone Only transmissions (Alphanumeric or numeric with no message)

6.1 Alphanumeric transmissions

Messages can contain any alphanumeric character. The 1162 will accept the standard ASCII 7 bit character set.

6.2 Numeric transmissions

Messages can contain numeric characters and some symbols. These can convey a telephone number, or other numerically coded information. The transmitted message is shorter, and therefore there is a smaller chance of errors received by the pager.

The numeric character set is as follows:

0 1 2 3 4 5 6 7 8 9 [] - E U <space>

*Note. The E may be displayed as P or * on different pagers*

6.3 Tone Only transmissions

Any numeric or alphanumeric paging message without an actual text message is also considered 'Tone Only'. A function level will control the number of beeps on the receiver (four different function levels can be sent).

7.0 INITIATING TRANSMISSIONS

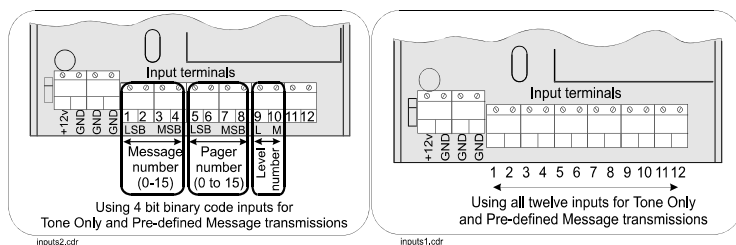
There are four ways of initiating a paging message transmission:

- Using the external discrete inputs (action)
- Low supply detector threshold (action)
- Watchdog (action)
- RS232 Serial commands

An action is defined as a paging message, RIC (Receiver Identification Code or capcode) and flags. These flags are discussed in the PSD (product support disk) section.

7.1 External Discrete Inputs

An action can be initiated from the twelve external inputs with an input transition to LOW (connection to GND) and/or HIGH (input floating or connection to >+3.5v).



7.2 Low supply message

After a de-bounce period, the low-supply detector can initiate an action for both "supply going high" and "supply going low" conditions.

7.3 Watchdog

The watchdog feature will initiate an action after a predetermined period. The watchdog timer can be restarted (optionally) by any other action.

7.4 Using the RS232 Serial Commands

Serial commands can be "manually" issued to an 11-62 using a terminal program such as PROCOMM or Hyper-terminal. Tone only, numeric and alphanumeric pagers can be called using serial commands. These commands will be processed in parallel with other inputs actions for transmission. Some basic commands are described in section 7.4.1. Information on the full protocol command set is available in request.

7.4.1 Protocol Command Set

CA

Usage: CA<pager#>[<space>]<level>[<space>]<cr>[<message><CR>
 Description: Call alphanumeric pager
 Example: CA119358 1 Please return to reception<CR>
 Response: CA01193581<CR>
 <SPACE>Page Sent<CR>
 Example 2: CA119358 1<CR>
 Please return to reception<CR>
 Response 2: CA01193581<CR>
 MSG?<echos each character of message><CR>
 <SPACE>Page Sent<CR>

CN

Usage: CN<pager#>[<space>]<level>[<space>]<cr>[<message><CR>
 Description: Call numeric pager
 Example: CN119358 1 777<CR>
 Response: CN01193581<CR>
 <SPACE>Page Sent<CR>
 Example 2: CN119358 1<CR>
 777<CR>
 Response 2: CN01193581<CR>
 MSG?<echos each character of message><CR>
 <SPACE>Page Sent<CR>

CP

Usage: CP<pager#>[<space>]<level><CR>
 Description: Call tone-only pager
 Example: CP01193581<CR>
 Response: CP01193581<CR>
 <SPACE>Page Sent<CR>

HELP

Usage: HELP [topic]<CR>
Description: Shows available commands or help on a particular command
Example: HELP CP<CR>
Response: CA<pager#>[]<level><cr>
 Call alphanumeric pager

MAP

Usage: MAP<CR>
Description: Show details of current configuration
Example: MAP<CR>
Response: <details of current configuration>

RES

Usage: RES<CR>
Description: Reset 11-62 microcontroller
Example: RES<CR>
Response: SALCOM Data Transmitter 11-62<CR>
 ATS0=0<CR> (Optional HAYES initialisation string)

SN?

Usage: SN?<CR>
Description: Retrieve unit serial number and firmware revision
Example: SN?<CR>
Response: SALCOM Data Transmitter 11-62-9999 100 9811 A<CR>

7.4.2 Error Codes/Reports

ER1 SYNTAX

You entered an invalid command

ER3 OPERND

You entered a valid command with invalid values

8.0 TROUBLE SHOOTING

If the 1162 does not perform as required, the following points may lead to solving the problem

Fault	Check
No illumination of Green LED	Bad power supply connection
Input activated but no transmission	PSD configuration incorrect
Unit transmits but nothing received	Poor aerial. Wrong frequency, RIC, baud-rate. Power too low. Unit too hot. Too much vibration
No RS232 serial communication	Comport connections, baud-rate (1200-9600) no parity, eight data bits, one stop bit
No synthesizer lock. Red LED flashes rapidly	VCO loop, Channel busy active.
Green led flashes rapidly	Low supply detector threshold
Unit starts, but does not complete transmission	Poor supply volts, RF interference.

9.0 PROGRAMMING

9.1 Connecting the Programming Software:
The programmable parameters of the 11-62 can be configured using a serial cable and the MultiPSD software which can be downloaded from the support area of the Salcom website www.salcom.co.nz

Connect the serial cable from the 11-62 D9 socket to any PC comm port and apply power to the 11-62.

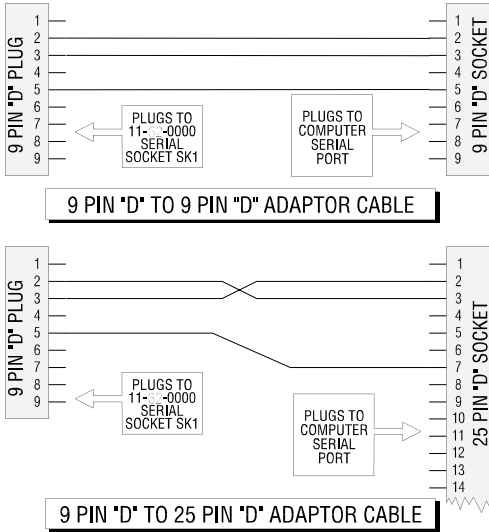
MultiPSD should display CONNECTED at the bottom of the screen and the screen should change to the setup screen for the target unit.

If DISCONNECTED is still displayed, check that the correct comm port is selected by selecting Change Comm Port in the Setup menu. Select the correct comm port from the list of available comm ports displayed.

Once connected, click on the Read Configuration button and the current setup of the target unit will be read and displayed.

Information about the settings and operation of the software can be accessed via the built in help function of the MultiPSD software by pressing F1 or selecting Help from the Help menu.

Programming of the 11-62 should be performed only by suitably qualified personnel.



9.2 Using the Programming Software:

MultiPSD allows the user to configure the following characteristics:

- Input actions, watchdog, low supply detector, GPS transmission and POCSAG transmission settings
- Pre-defined messages
- RF frequency and output power
- RS232 configuration
- 100 pager numbers

Once the program is running, the opening screen appears. Use the mouse to select the configuration fields for each feature. At any time context sensitive help is available by pressing F1.

The diagram above shows the cable connections for both 9 pin and 25 pin serial ports. The serial comm port has connections to match the standard DB9 RS232 pin-out.

10.0 SPECIFICATIONS

Power Supply	+11.5 V to 15.2 V nom 13.8 V
RF Frequency	138 - 170 MHz
Channel Spacing	12.5 KHz or 25 KHz
Output Power	4 Watts +/- 1 dB 50Ω (25 Watts optional)
Power Consumption	Standby : 45 mA Low power standby - 15 mA Transmit: 800 mA approx
Modulation	Carrier FSK with NRZ data
Deviation	+/-4.5kHz or +/-2.5kHz
Baud rate	512/1200/1600/2400Baud
Message format	POCSAG
Spurious Outputs	-30dBm or less
Serial input/output	RS-232 (DCE), 1200-9600 baud no parity, 8 data bits, 1 stop bit
Serial paging command protocols	SALCOM proprietary, PET (PG1) GPS (NMEA \$GPGGA)
Discrete inputs	Pulled up to +12v (47K), ground to activate
Discrete outputs	+12v on P5 pin 1 (200mA max). +12v switched P5 pin 9 (200mA max) PTT & Data on P7 pins 5 and 9 (20mA sink with 47K pull-up to 5 V)
Case Dimensions	140 x 105 x 32mm
Type Approvals	New Zealand - Australia AS4295
Transmit duty cycle	Up to 50%

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